



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/566,367

10/30/2006

Kiminobu Hirata

050203-0140

5551

31824 7590 06/03/2008  
MCDERMOTT WILL & EMERY LLP  
18191 VON KARMAN AVE.  
SUITE 500  
IRVINE, CA 92612-7108

EXAMINER

TRAN, DIEM T

ART UNIT

PAPER NUMBER

3748

MAIL DATE

DELIVERY MODE

06/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,367	<b>Applicant(s)</b> HIRATA, KIMINOBU	
	<b>Examiner</b> DIEM TRAN	<b>Art Unit</b> 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This office action is in response to the Request for Reconsideration filed on 5/9/08.

Overall, claims 1-5 are pending in this application.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yajima (JP 2002-332825).***

Yajima discloses an exhaust gas purification apparatus of an engine comprising:  
a nitrogen oxide reduction catalyst (16) arranged in an engine exhaust gas passage to reduce and purify nitrogen oxide in exhaust gas using a liquid reducing agent; a nozzle (18) having an injection hole that opens into the exhaust gas passage, and positioned on an exhaust gas upstream side of said nitrogen oxide reduction catalyst (16) (see Figure 1, pages 3, 4, par. [16]); an operating state detecting device detects an engine operating state (see page 4, par. [19]); a reducing agent injection-supply device that injection supplies the liquid reducing agent into the exhaust gas passage from said nozzle injection hole during operation of the engine according to an injection flow rate of the liquid reducing agent, based on the engine operating state detected by said operating state detecting device (see page 5, par. [21]); and a high pressure air supply device (24) that supplies high pressure air into said nozzle (18) during operation of the engine

Art Unit: 3748

when the injection flow rate of the liquid reducing agent from said reducing agent injection-supply device becomes zero (see page 3, par. [12], page 7, par. [29]); however, fails to disclose supplying high pressure air into said nozzle for a predetermined period of time when the injection flow rate of the liquid reducing agent from said reducing agent injection-supply device becomes zero.

Since Yajima discloses that only air is injected from the nozzle through the use of pressurized air after the end of addition reducing agent to prevent blinding of the nozzle (see page 3, par. [12]), it would have been obvious for one having ordinary skill in the art to realize that Yajima discloses supplying high pressure air into said nozzle for a predetermined period of time during operation of the engine to prevent clogging of the nozzle.

***Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yajima (JP 2002-332825) in view of Brenner et al. (US Patent 6,041,594).***

Regarding claim 2, the modified Yajima system discloses all the claimed limitations as discussed in claim 1 above, however, fails to disclose that said reducing agent injection-supply device reduces a pressure of compressed air stored in an air reservoir tank to a predetermined pressure, and mixes the compressed air whose pressure is reduced with the liquid reducing agent to transform into an atomized state, and then injection-supplies this from said nozzle injection hole into the exhaust gas passage. Brenner teaches that reducing pressure of compressed air stored in an air reservoir tank (12) to a predetermined pressure before mixing the compressed air with the liquid reducing agent to form an atomized state to inject reducing agent into the exhaust gas (see Figure 1, col. 2, lines 31-50).

It would have been obvious for one having ordinary skill in the art, to have utilized the teaching of Brenner in the Yajima system, since the use thereof would have improved the efficiency for injecting reducing agent into the exhaust gas system.

Regarding claim 3, Brenner further teaches that said high pressure air is compressed air which is stored in said air reservoir tank (12) (see Figure 1).

Regarding claim 4, Brenner further teaches that an air compressor (11) (pump P) for pressurizing the atmosphere to a predetermined pressure, and said high pressure air is compressed air which has been pressurized by said air compressor (11) (see Figure 1, col. 2, lines 30-32).

Regarding claim 5, Yajima further discloses that a pressure-reducing device (32) that can be switched to either let compressed air pass through directly, or to reduce the pressure to a predetermined pressure as it passes through, and said reducing agent injection supply device and said high pressure air supply device exclusively each use the compressed air that has been reduced in pressure to a predetermined pressure by said pressure reducing device, and compressed air that has passed through directly (see Figure 1).

### ***Response to Arguments***

Applicant's arguments filed on 5/9/08 have been fully considered and they are deemed persuasive, therefore, the last final rejection is hereby withdrawn and a new non-final rejection is set forth above.

*Conclusion*

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (571) 272-4866. The examiner can normally be reached on Monday -Friday from 8:00 a.m.- 5:30p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax number for this group is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 800-786-9199 (toll-free).

/Diem Tran/  
Patent Examiner

/Thomas E. Denion/  
Supervisory Patent Examiner, Art Unit 3748